

Communications and Frequencies Plan for Nauru 99

- I. Communication between Nauru, Research Vessels, and Cessna 404
 - A. HF for Communications between Ships and Island operates at 3-6 MHz
 - 1. HF works for communications up to 200 km
 - 2. 12 volt power supply needed.
 - 3. Ray Edwards will ship equipment to AIS
 - 4. Ray Edwards will get off the Mirai to install HF Radio in D-van
 - 5. 75 foot wire will have to be strung (for Antenna)
 - 6. Transmission may interfere with Instrument Measurements
 - 7. Keep log of transmit times for Interference issues with Instruments
 - 8. Is an airband HF needed for communications with the Cessna 404?
 - B. VHF for Communications between Ships and Island operates at 118-130 MHz
 - 1. VHF works for communications up to 25 km
 - 2. VHF on ships currently set to 122.8 MHz
 - 3. VHF is a hand held walkie talkie
 - 4. Ray Edwards will ship equipment to AIS
 - 5. Is an airband VHF needed for communications with the Cessna 404?
 - C. Inmarsat B for email to and from ships
 - 1. Ron Brown sends and receives 2 times/day
 - 2. Mirai sends and receives 4 times/day at 04, 08, 12, and 1600 hrs.
 - 3. Airtime (\$18/min) is to be kept at a minimum.
 - D. Cellular phones
 - 1. Frequencies are 896 - 912 MHz
 - E. Cordless Phones
 - 1. 43.7 – 49.9 MHz and 900 MHz phones are 902-928 MHz
- II. On Island Vaisala Radiosondes, Vaisala P/N RS80-15GH
 - A. Record all serial numbers of Radiosondes launched
 - B. Tuneable from 400-406 MHz (use 403.5)
 - C. Drift should be less than 0.25 MHz
 - D. Sonde transmits at 0.25 watts
 - E. Use AFC lock on ground station receiver?
 - F. Launches as frequently as 8/day
 - G. Use Research Mode or Normal Mode on DigiCora II?
- III. CIMEL
 - A. 401.76MHz
 - B. Transmits for 2 minutes per hour
 - C. Selectable but all available frequencies are 401.6 - 401.8
- IV. Aerosonde, Vaisala P/N RSS 901 Radiosonde:
 - A. Ask Greg Holland to tune to 398 Mhz but no higher than 400 MHz
 - B. Greg can fly up to three Aerosondes all on the same frequency as each Aerosonde transmits packet info. specific to each Aerosonde.
 - C. Tuneable, but they have to be more than 1.25 MHz apart.
 - D. 100 octance low lead AV-Gas fuel is required. Usage is 2 gal/24 hours
 - E. Aerosonde altitude during sampling: 500 ft - 3 km

- V. R.V. Ron Brown Radiosondes, Vaisala P/N RS80-15GH:
 - A. 405 MHz or 404.5 MHz minimum
 - B. Number of flights per day (4-8)
- VI. R. V. MIRAI Radiosondes, Vaisala P/N RS80-15GH:
 - A. 401 MHz
 - B. 8 flights per day (00, 03, 06, 09, 12, 15, 18, 21Z) June 17 – July 5
 - C. Actual launch time is 30 minutes prior to top of the hour (ie, 06 flight is launched at 05:30 hours).
- VII. R.V. Brown MMCR and On Island MMCR
 - A. Be aware that as Ron Brown approaches Nauru, the MMCR on the Ron Brown may interfere with the MMCR on Nauru. Begin watching the MMCR on Nauru when the Ron Brown gets within 4 km of Nauru (Both MMCR's are on the same frequency). Contact the Ron Brown and have them shut off their MMCR if it interferes with the one on Nauru.

Per Chris Keenan at Vaisala regarding the GPS radiosondes, p/n 95-RS80-15GH. All of the GPS sondes are 403.5 Mhz and that for sondes launched closely spaced together, you need to keep the frequencies at least 1 Mhz apart from the previous launch. Each sonde tends to travel up in frequency as time progresses into the flight. Chris recommends lowering each additional sonde by 1 Mhz so the previous sonde will travel in frequency away from the next sonde. The location to make this adjustment is inside a compartment like the battery compartment but on the opposite side of the sonde (inside a little flap). Tuning is performed with a jewelers screwdriver on the slotted tuning post. The procedure is to Press "Telemetry" on the DigiCora II, next Press "Scan" on the DigiCora II, next put "Track Control" on, and then tune the sonde. As you tune the sonde you should be able to see the frequency change on the DigiCora II.

Monty

Questions:

1. If we track Sondes for longer than 3 hours, what Frequency do we tune to when we send up the next scheduled balloon in 3 hours (for 8 balloon launches/day)?
2. When recording Radiosonde data on the island, do we use Research Mode or Normal Mode on the DigiCora II?
3. When recording Radiosonde data on the island, do we use the AFC lock on the ground station receiver?
4. Is an Air band HF radio needed for communications with the Cessna 404 from the Operations Center on Nauru?
5. Is an Air band VHF radio needed for communications with the Cessna 404 from the Operations Center on Nauru?